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[Continued on next page]

(54) Title: **PLANT LIMIT DEXTRINASE INHIBITOR**

	10	20	30	40	50
Hordeum vulgare	---MARD-HR	RFVLSGAVLL	SVLAVAAATL	E-----	SVKDECCQGV
Oryza sativa	---MASN-KV	VFSVLLAVV	SVLAATAATMA	EYRHQDQVY	TPGPLCQPGM
Hordeum spontaneum	---MAFK--Y	QELLSAAVML	AILAATVT--		SPGDMCAPGD
Eleusine coracana					SVGTSCIPGM
Sacale cereale					SVGGQCVPGM
Triticum durum	---MACKSSC	SILLAAVLL	SVLAA--A--		SASGSCVPGV
Ze mays	MASSSSSSR	RLILAAVLL	SVLAAASA--		SAGTSCVPGW
Triticum aestivum	---MASN-HR	RFLLSGAVLL	SVLAAVAA-L	E-----	SVEDECCQGV

	60	70	80	90	100
Hordeum vulgare	DFPENPLATC	HTYVIKRCVG	---RGPSRPM	LV-----	-----KERC
Oryza sativa	GYPNPLPRC	RAIVKRQCUG	---RGTAATA	EQ-----	-----VRRDC
Hordeum spontaneum	ALPANPLRAC	RTYVVSQIC-	---HVGFRLST	ND-----	-----MKRRC
Eleusine coracana	AIPENPLDSC	RNYVAKRACG	---VGFRLAT	QR-----	-----MKRRC
Sacale cereale	AMPHNPLGAC	RTYVVSQIC-	---HVGFRLST	ND-----	-----MKRRC
Triticum durum	AFRINLLPHC	RDYVLOQTCG	TFTPGSKLPE	WMTSASTYSP	GKPYLAKLYC
Ze mays	AIPENPLPSC	RNYVTSRTCG	---IGFRLPW	PE-----	-----LKRRC
Triticum aestivum	APPENALATC	HTYVIKRCVG	---RGPSRPM	LV-----	-----KERC

	110	120	130	140	150
Hordeum vulgare	CRRLAAPP-D	ECRCALRLIL	MDGVETPE--	---GRVVEG	RLGDRRDCPR
Oryza sativa	CRQLAAVDD	WCRCALISHM	LGGIYRELG-	---APDVGHP	MSEVFRGCR
Hordeum spontaneum	CDLSAIP-A	YCRCALRII	MDGTVTWQ--	---GVFP-A	YFKDMPCPR
Eleusine coracana	CRQLAIP-A	YCRCAVRIL	MDGVVTP--	---SGQHEGR	LLQDLPGCPR
Sacale cereale	CDRLAIP-A	YCRCALRLIL	MDGVVTPQ--	---GVFEGG	YKDMPCPR
Triticum durum	CQELAEIS-Q	QCRCALRYF	IALPVPSQV	DPKSGNVGHS	GLIDLPGCPR
Ze mays	CRRLADIP-A	YCRCTALSIL	MDGAIPGP-	---DAQLBGR	LELDLPGCPR
Triticum aestivum	CRRLAAPP-D	YCRCALRLIL	MDGVRAES--	---GHVVEG	RLGDRRDCPR

	160	170	180	190
Hordeum vulgare	ECORAFATL	VTAARCNLSS	VQAPGVRLVL	LADG-----
Oryza sativa	GDLEAAASL	PAPCNVDIPN	GGG-GVCYWL	ARSGY-----
Hordeum spontaneum	VNQTSAANL	VNPQCNLMT	IHGSPSCPEL	QPGYEVVL--
Eleusine coracana	QVORAFAPKL	VTSVECNLAT	IHGSPFCLSL	LGAGE-----
Sacale cereale	VTORSYAATL	VAPQECNLPT	IHGSPYCPTL	OGY-----
Triticum durum	ENQWDVRL	VAPQGCNLAT	IHNVRYCPAV	RQPLWI-----
Ze mays	EVORGFATL	VTAARCNLAT	ISGVARCEWI	LGQGTMPK--
Triticum aestivum	BAOREFAATL	VTAARCNLPT	VS--GVGSTL	GATGRMTIE

(57) Abstract: The invention provides a method of producing plants with altered number, size or composition of starch granules, including starch granules having a more uniform size or altered starch structure, the method comprising introducing into a plant a nucleotide sequence comprising a limit dextrinase inhibitor gene, or a fragment or variant, or sequence homologous to the gene sequence provided. Also provided are a nucleotide sequence and protein of the limit dextrinase inhibitor gene, and plant and plant parts produced by the method of the invention. Modified starch is also provided.



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